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What is claimed is :

5 1) A method for enhancing *in vitro* synthesis
of biological macromolecules in a cell-free system where
ATP is required as a primary energy source, wherein said
cell-free system is enriched with ATP-sulfurylase

10 2) The method of claim 1, wherein the
biological macromolecules are polymers such as
nucleic acids, proteins and fragments thereof.

15 3) A method according to anyone of claims 1
or 2, wherein the cell free system comprises exogenous
APS.

 4) The method according to anyone of claims
1 to 3, wherein said *in vitro* synthesis comprises also
transcription of mRNA from a DNA template.

20 5) A method according to anyone of claims 1
to 4, wherein said *in vitro* synthesis is carried out in
a reaction vessel as a batch reaction, semi continuously
or continuously.

25 6) A method according to anyone of claims 1
to 5, wherein ATP-sulfurylase is added to the cell-free
system at the beginning and/or during the *in vitro*
synthesis or at intervals during the *in vitro* synthesis.

30 7) A method according to anyone of claims 1
to 6, wherein the cell-free system comprises a cell-free
extract prepared from cells transformed with a vector
over-expressing ATP-sulfurylase.

8) A method according to anyone of claims 1 to 7, wherein ATP-sulfurylase concentration is adapted according to the experimental conditions and the biological macromolecules to be synthesized.

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9) A method according to anyone of claims 1 to 8, wherein ATP-sulfurylase is present in the cell-free system at an initial concentration of at least about 0.1 U/ml.

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10) A cell-free system enriched with ATP-sulfurylase.

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11) A cell-free system according to claim 10 comprising exogenous APS.

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12) A cell-free system according to anyone of claims 10 or 11 comprising all substances necessary for the translation of mRNA and transcription of mRNA from a DNA template.

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13) A cell-free system according to anyone of claims 10 to 12, wherein extra ATP-sulfurylase is derived from prokaryotic organism, eukaryotic organism, transgenic vector, bacterial cell that has been genetically modified, *E. coli* extract, or is purified.

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14) A cell-free system according to anyone of claims 10 to 13, wherein the cell-free extract enriched with ATP-sulfurylase is prepared from cells transformed with a vector over-expressing ATP-sulfurylase.

15) A cell-free system according to anyone of claims 10 to 14, wherein ATP-sulfurylase is present in a concentration of at least about 0.1 U/ml.

5 16) A cell-free extract enriched with ATP-sulfurylase.

10 17) A cell-free extract according to claim 16 comprising exogenous APS.

15 18) A cell-free extract according to anyone of claims 16 or 17 comprising all substances necessary for the translation of mRNA and transcription of mRNA from a DNA template.

20 19) A cell-free system according to anyone of claims 16 to 18, wherein extra ATP-sulfurylase is derived from prokaryotic organism, eukaryotic organism, transgenic vector, bacterial cell that has been genetically modified, *E. coli* extract, or is purified.

25 20) A cell-free system according to anyone of claims 16 to 19 prepared from cells transformed with a vector over-expressing ATP-sulfurylase.

30 21) A cell-free extract according to anyone of claims 16 to 20, wherein ATP-sulfurylase is present in a concentration of at least about 0.1 U/ml.